KERALA AGRICULTURAL UNIVERSITY

B.Tech.(Ag. Engg.) 2016 Admission

III Semester Final Examination-January-2018

Fape.2102 Post Harvest Engineering of Cereals, Pulses and Oil Seeds (2+1)

Marks: 50

Time: 2 hours

I Choose the correct answer (10x1=10)

1 Rittinger's Law is applied for the size reduction of
   a Coarse material
   b Intermediate type of particles
   c Fine Particles
   d None of the above

2 Energy required to grind a material is expressed by
   a Fick's Law
   b Kick's Law
   c Newton's Law
   d Stoke's law

3 In hammer mill, the size reduction is achieved by
   a Shear
   b Cutting
   c Crush
   d Impact

4 The gravitational sedimentation of particles in a fluid is governed by----------
   a Stokes Law
   b Raoults Law
   c Kick's Law
   d None

5 The screen cleaner efficiency can be improved by providing
   a Screen Brushes
   b Screen Knockers
   c Rubber balls
   d All of the above

6 In Specific gravity separator the separation happens according to difference in ----------
   a Density or Specific Gravity
   b Roundness
   c Size only
   d Relative length

7 Unit of thermal conductivity is
   a W/m.^{o}C
   b m^2/s
   c kJ/kg.^{o}C
   d kJ/kg

8 In deep bed drying the layer of grains is more than
   a 50 cm
   b 15 cm
   c 5 cm
   d 75 cm

9 The most commonly used solvent in the Indian plants is ----------
   a Water
   b n-Hexane
   c Ethanol
   d None

10 The bran removed in rice polishing is
   a 4-6 %
   b 1-2 %
   c 15-20 %
   d 10-15 %

II Answer any FIVE of the following (5x2=10)

1 Explain milling/hulling efficiency with equation.

2 500 kg of paddy at 22% moisture content (wb) is dried to 14% moisture content (wb) for milling. Calculate the amount of moisture removed in drying.

3 Write a short note on hysteresis effect.

PTO

4 Describe different drying rate periods.
5 Write a note on screw press.
6 Explain CFTRI method, of paddy parboiling.
7 Mention the factors affecting pulse milling outturn.

III **Answer any FIVE of the following.** **(5x4=20)**

1 Write about advantages and disadvantages of parboiling in paddy
2 Write material, machine and operational factors which influence the design of an air screen cleaner.
3 Explain the moisture content determination methods.
4 Write a note on cyclone separator.
5 Explain EMC models – a. Kelvin equation. b. Henderson Equation
6 In a wheat milling experiment it was found that to grind 4.33 mm sized grains to IS sieve 35 (0.351 mm opening), the power requirement was 8 kW. Calculate the power requirement for milling of wheat by the same mill to IS sieve 15 (0.157 mm opening), using 1. Rittinger's and 2. Kick's law.
Feed rate of milling is 200 kg/h.
7 Explain with diagram and principle, twin screw extruder.

IV **Write an essay on any ONE of the following** **(1x10=10)**

1 Write about important unit operations in pulse milling and explain wet and dry milling methods of pulse processing.
2 Write in detail about belt conveyor and bucket elevator.

****